

Managing sewage treatment facilities using geographical information system application: a user requirement analysis in state of Penang, Malaysia

M Z Idris, R Suratman*, S Samsudin, F Zaini

Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia.

*robiah@utm.my

Abstract. Rapid development of economy in Malaysia and the large city scale expansion has led to increase in number of domestic sewage and industrial water waste. In managing sewage treatment facilities, Indah Water Konsortium Sdn Bhd (IWK) has developed the Integrated Geographical Information System (IGIS) to help them in decision making process. The face to face interview method with IGIS users has been used in getting the feedback on examining the main attribute data needed and then analyze it by using content analysis. It is conducted by updating the required attribute data into the IGIS application and removing unrelated attributes. In addition, the spatial information that can help to improve the IGIS application also be included in new version. Based on the findings of this paper, the improvement of this information will help the IWK to manage this sewerage system more effectively and to control the increasing number of sewerage treatment plant (STP). The upgraded IGIS application improves the management efficiency, management level and decision-making capacity of sewage treatment in state of Penang and provide a good demonstration and reference in sewage treatment infrastructure in others city.

1. Introduction

The higher demand in property sector in Malaysia has created many new development areas in major cities especially in Kuala Lumpur, Johor Bharu, Ipoh and Butterworth in state of Penang. To ensure the well-being and comfort of the property buyer or owners, a few a guideline has been gazetted in which the developers must adhere to provide all relevant amenities such as Sewerage Treatment Plant (STP) facility. The Indah Water Konsortium Sdn Bhd (IWK) is the national sewerage company that responsible to manage, operate and maintain a sewerage system nationwide except the state of Kelantan, Sabah, Sarawak and two local authorities in the state of Johor, it is Johor Bahru and Pasir Gudang. Existence of the new development areas has led to an increasing number of Public Sewerage Treatment Plant (LRKA) and the number of Public Sewerage Sewer line (SPPA) that need to be maintain and operate by IWK every year.

With the latest capabilities of information technology (IT), the use of the Geographical Information System or more commonly known as GIS in Malaysia has become most popular application and it is used by many departments and agencies because of it various capabilities to assist with data and information storage, helping decision making for planning and development and as a medium for management [1]. IWK is currently facing a significant challenge such as in identifying the critical SPPA,

